

## Remarks

Claims 1-26 are pending. Claims 3-7 and 16-20 are withdrawn pursuant to the Examiner's previous restriction requirement.

The Examiner rejected Claims 1-2, 8-15 and 21-26 under 35 U.S.C. § 112, second paragraph, for reciting the phrase "from time to time." As amended, the phrase to which the Examiner objects has been deleted from the claims. Accordingly, Applicant submits that Claims 1-2, 8-15 and 21-26 fully comply with 35 U.S.C. § 112, second paragraph.

The Examiner rejected Claims 1-2, 8-10, 14-15 and 21-23 under 35 U.S.C. § 102(b) as being anticipated by the article "A Distributed Event Logging System" ("Jaiswal"), in view of the article "Netlogger: a Toolkit for Distributed System Performance Analysis" ("Gunter") and the description for xntpd (1Mtcp) ("xntpd"). With respect to independent Claims 1 and 14, the Examiner states:

3. Claims 1 and 14 are rejected for the following reasons:

Jaiswal teaches:

1. A distributed system comprising: a plurality of cooperative processes running on a plurality of processors of a computer network to accomplish a distributed transaction,(Page 1 para 2) each process logging in a local resource records of execution; and a search engine running on each of the plurality of processors,(Section 5 para 2) each search engine retrieving corresponding records of execution in response to a query (Section 6).

Jaiswal fails to expressly disclose:

A system synchronizer sending a timing message to be logged from time to time to the plurality of cooperative processes;

However, this limitation would have been obvious in view of Gunter which was NTP and xntpd to synchronize the time of all the servers in a distributed processing system, and

xntpd which teaches the logging of the periodic timing messages received by servers as part of the xntpd daemon used (monitoring option).

Gunter:

## **2.1 Clock Synchronization: NTP**

To analyze a network-based system using time-stamps, the clocks of all systems involved must be synchronized. This can be achieved by using the Network Time Protocol (NTP) [10]. By installing a GPS-based NTP server on each subnet of the distributed system, and running the *xntpd* daemon on each host, all the clocks can be synchronized to within about 0.25 ms of each other. It has been our experience that most application-significant events can be accurately characterized by timestamps that are accurate to about 1 ms, well within NTP's tolerances. If the closest time source is several IP router hops away, NTP accuracy will be somewhat less, but probably still be accurate enough for many types of analysis. The NTP web site<sup>2</sup> has a list of public NTP servers that one may be able to connect and synchronize with.

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to include these features, as they provide more accurate timing to provide more accurate analysis.

Applicant respectfully traverses the Examiner's rejection. As amended, Claim 1 now clearly recites a process logging the records of execution to carry out a distributed transaction, so as to allow the distributed transaction to be subsequently examined through a query using a search engine:

1. (Previously presented) A distributed system comprising:

a plurality of cooperative processes running on a plurality of processors of a computer network to accomplish a distributed transaction, each process logging, in a local resource, records of execution of the distributed transaction by the process on its processor;

and

a system synchronizer sending a timing message to be logged to the plurality of cooperative processes;

a search engine running on each of the plurality of processors, each search engine retrieving corresponding records of execution in response to a query regarding the distributed transaction.

(emphasis added)

As illustrated in Applicant's Specification, at page 5, lines 26-34, Claim 1's system allows detailed examination of the execution of a distributed transaction (e.g., debugging a failed transaction). As further discussed in the Specification, at page 6, lines 31-33, conventional wisdom does not teach using a search engine to carry out distributed debugging or transaction tracking. Therefore, as Jaiswal's disclosure, at page 1, paragraph 2 -- upon which the Examiner relied for his rejection -- merely discloses logging system performance data, but not records of execution of distributed transactions, Jaiswal neither discloses nor suggests Claim 1. Neither Gunter nor xntpd discuss distributed transactions. Thus, Applicant respectfully submits that independent Claim 1 and its dependent Claims 2 and 8-10 are each unobvious and thus allowable over the combined teachings of Jaiswal, Gunter and xntpd. Claims 14-15 and 21-23 are each similarly also allowable over the combined teachings of Jaiswal, Gunter and xntpd. Reconsideration and allowance of Claims 14-15 and 21-23 are therefore requested.

The Examiner rejected Claims 11-12 and 24-25 under 35 U.S.C. § 103(a) as being unpatentable over Jaiswal, in view of Gunter and xntpd, and further in view of U.S. Patent 6,657,517 ("Dickey"). The Examiner states:

Claims 11-12, and 24-25 are rejected as Jaiswal teaches periodically backing up log files and stating a new file in section 4 para 2, however Jaiswal fails to teach how the logs are stored. Dickey col 2 lines 1-14 teaches storing

initially in memory, Col 5 lines 31-39 teaches offloading to a disk storage. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to include these features, as using memory is fast, and using disk memory for old or backup data is cheaper.

Applicant respectfully traverses the Examiner's rejection. As Claims 11-12 and 24-25 each depend from independent Claims 1 and 14, respectively, each of Claims 11-12 and 24-25 are allowable over the combined teachings of Jaiswal, Gunter and xntpd for the reason set forth above with respect to Claims 1 and 14. As Dickey provides no teaching that would cure the deficiency in the combined teachings of Jaiswal, Gunter and xntpd, Claims 11-12 and 24-25 are each allowable over the combined teachings of Jaiswal, Gunter, xntpd and Dickey. Reconsideration and allowance of Claims 11-12 and 24-25 are therefore requested.

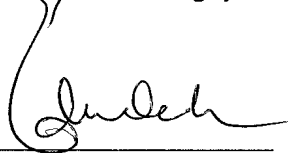
The Examiner rejected Claims 13 and 26 under 35 U.S.C. § 103(a) as being unpatentable over Jaiswal, in view of Dickey, and further in view of U.S. Patents 6,330,570 ("Crighton") and 6,618,882 ("Loaiza"). The Examiner states:

Jaiswel and Dickey teach the claims upon which claims 13 and 26 are dependent, but fail to expressly disclose the merger of the indices in memory and in the disk storage. This is taught in Crighton Col 6 lines 40-48 which teaches an append type backup, by appending in this manner would cause the current file (the one stored in memory in this case) to be appended (and thus merged with) to the backup cope(the indices on the disk) Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to add this feature do to the advantage of providing a backup contains all previous log data) In the alternative, Loaiza also teaches this limitation as it teaches querying ranges of time in col 16 lines 1-14, thus in the instance were the range included both to backup and the current file the two would be merged as query results are merged as discussed in claim 8. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to include this feature to provide the advantage of narrowing the search to a date range.

Applicant respectfully traverses the Examiner's rejection. As Claims 13 and 26 each depend from independent Claims 11 and 24, respectively, each of Claims 13 and 26 are allowable over the combined teachings of Jaiswal, Gunter, xntpd, and Dickey for the reason set forth above with respect to Claims 11 and 24 above. (Although the Examiner did not cite Gunter and xntpd in support of his rejection, as Claims 11 and 24 are rejected over the combined teachings of Jaiswal, Gunter, xntpd and Dickey, Applicant assumes that the Examiner intends to base the rejection also on the teachings of Gunter and xntpd). As neither Crighton nor Loaiza provides any teaching that would cure the deficiency in the combined teachings of Jaiswal, Gunter, xntpd and Dickey, Claims 13 and 26 are each allowable over the combined teachings of Jaiswal, Gunter, xntpd, Dickey, Crighton and Loaiza. Reconsideration and allowance of Claims 13 and 26 are therefore requested.

Accordingly, all examined claims (i.e., Claims 1-2, 8-15 and 21-26) are believed allowable. If the Examiner has any question regarding the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicant at (408)-392-9250.

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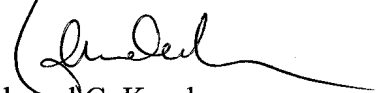


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6/6/2008

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